Claims

1. A method of reformatting a WDM signal that includes a plurality of optical channels having a first bandwidth and a first channel spacing, said method comprising the steps of:

receiving the WDM signal;

dividing the WDM signal into first and second subsets of optical channels each having a second channel spacing;

dividing the first subset of optical channels into third and fourth subsets of optical channels each having a third channel spacing;

dividing the second subset of optical channels into fifth and sixth subsets of optical channels each having a fourth channel spacing;

combining said third and said fifth subsets of optical channels to generate a first output WDM signal;

combining said fourth and said sixth subsets of optical channels to generate a second output WDM signal.

2. The method of claim 1 wherein said first and second subsets of optical channels are even and odd channels, respectively, of the plurality of optical channels of the WDM signal.

3. The method of claim 2 wherein said third and fourth subsets of optical channels are even and odd channels, respectively, of the first subset of optical channels.

4. The method of claim 3 wherein said fifth and six subsets of optical channels are even and odd channels, respectively, of the second subset of optical channels.

5. The method of claim 1 wherein said second channel spacing is approximately equal to twice said first channel spacing.

6. The method of claim 4 wherein said second channel spacing is approximately equal to twice said first channel spacing.

7. The method of claim 6 wherein said third and fourth channel spacings are approximately equal to twice said second channel spacing.

8. The method of claim 1 wherein said first output WDM signal has a fifth channel spacing approximately equal to said second channel spacing.

9. The method of claim 7 wherein said first output WDM signal has a fifth channel spacing approximately equal to said second channel spacing.

10. The method of claim 1 wherein said first and second output WDM signals have a fifth channel spacing approximately equal to said second channel spacing.

11. The method of claim 7 wherein said first and second output WDM signals have a fifth channel spacing approximately equal to said second channel spacing.

12. The method of claim 1 wherein said first and second output WDM signals include a plurality of optical channels having a second bandwidth that is greater than said first bandwidth of the WDM signal.

13 The method of claim 11 wherein said first and second output WDM signals include a plurality of optical channels having a second bandwidth that is approximately equal to twice said first bandwidth of the WDM signal.

14. An interleaver arrangement, comprising:

an input interleaver having an input port and at least a pair of output ports;

a second interleaver having a second input port coupled to a first of the two output ports of the input interleaver and having at least a second pair of output ports;

a third interleaver having a third input port coupled to a second of the two output ports of the input interleaver and having at least a third pair of output ports;

a first optical combiner having first and second combiner input ports and a first combiner output port, said first combiner input port coupled to a first of the second pair of output ports of the second interleaver, said second combiner input port coupled to a first of the third pair of output ports of the third interleaver;

a second optical combiner having a third and fourth combiner input ports and a second combiner output port, said third combiner input port coupled to a second of the second pair of output ports of the second interleaver and said fourth combiner input port coupled to a second of the third pair of output ports of the third interleaver.

15. The interleaver arrangement of claim 14 wherein said input interleaver is configured to receive on the input port a WDM signal that includes a plurality of optical channels having a first bandwidth and a first channel spacing and to divide the WDM signal into first and second subsets of optical channels each having a second channel spacing.

16. The interleaver arrangement of claim 15 wherein said second interleaver is configured to receive on the second input port said first subset of optical channels and to divide the first subset of optical channels into third and fourth subsets of optical channels each having a third channel spacing.

17. The interleaver arrangement of claim 16 wherein said third interleaver is configured to receive on the third input port said second subset of optical channels and to divide the second subset of optical channels into fifth and sixth subsets of optical channels each having a fourth channel spacing.

18. The interleaver arrangement of claim 17 wherein said first optical combiner is configured to combine said third and said fifth subsets of optical channels to generate a first output WDM signal and said second optical combiner is configured to combine said fourth and said sixth subsets of optical channels to generate a second output WDM signal.

19. The interleaver arrangement of claim 15 wherein said first and second subsets of optical channels are even and odd channels, respectively, of the plurality of optical channels of the WDM signal.

20. The interleaver arrangement of claim 16 wherein said first and second subsets of optical channels are even and odd channels, respectively, of the plurality of optical channels of the WDM signal.

21. The interleaver arrangement of claim 20 wherein said third and fourth subsets of optical channels are even and odd channels, respectively, of the first subset of optical channels.

22. The interleaver arrangement of claim 17 wherein said fifth and six subsets of optical channels are even and odd channels, respectively, of the second subset of optical channels.

23. The interleaver arrangement of claim 15 wherein said second channel spacing is approximately equal to twice said first channel spacing.

24. The interleaver arrangement of claim 17 wherein said third and fourth channel spacings are approximately equal to twice said second channel spacing.

25. The interleaver arrangement of claim 18 wherein said first output WDM signal has a fifth channel spacing approximately equal to said second channel spacing.

26. The interleaver arrangement of claim 18 wherein said first and second output WDM signals have a fifth channel spacing approximately equal to said second channel spacing.

27. The interleaver arrangement of claim 18 wherein said first and second output WDM signals include a plurality of optical channels having a second bandwidth that is greater than said first bandwidth of the WDM signal.

28. The interleaver arrangement of claim 18 wherein said first and second output WDM signals include a plurality of optical channels having a second bandwidth that is approximately equal to twice said first bandwidth of the WDM signal.